| FCC CHAN. NO. | BASE/MOBILE TRANSMIT FREQUENCY | JURIS. NO. | ALLOTMENT TYPE | JURISDICTION |
|---|---|---|---|---|
| 821 | 868.8750/823.8750 | 6.7 | LICENSED | City of Coral Springs (includes Parkland) |
| | | 20.1 | POOLED | GADSDEN COUNTY (all eligibles) |
| | | 36.1 | POOLED | LEE COUNTY (all eligibles) |
| | | 45.1 | POOLED | NASSAU COUNTY (all eligibles) |
| | | 48.2 | LICENSED | ORANGE COUNTY (County-wide) |
| 822 | 868.8875/823.8875 | 3.1 | POOLED | BAY COUNTY (all eligibles) |
| | | 5.7 | LICENSED | BREVARD COUNTY (Palm Bay Site) |
| | | 12.1 | POOLED | COLUMBIA COUNTY (all eligibles) |
| | | 13.4 | LICENSED | DADE COUNTY Miami-Dade County |
| | | 17.1 | POOLED | ESCAMBIA COUNTY (all eligibles) |
| | | 51.1 | POOLED | PASCO COUNTY (all eligibles) |
| | | 41.2 | DEDICATED | MANATEE COUNTY (all eligibles) |
| | | 55.1 | POOLED | ST. JOHNS COUNTY (all eligibles) |
| 823 | 868.9000/823.9000 | 8.1 | LICENSED | CHARLOTTE COUNTY |
| | | 20.1 | POOLED | GADSDEN COUNTY (all eligibles) |
| | | 30.1 | POOLED | HOLMES COUNTY (all eligibles) |
| | | 42.2 | LICENSED | MARION COUNTY |
| | | 47.1 | POOLED | OKEECHOBEE COUNTY (all eligibles) |
| 824 | 868.9125/823.9125 | 3.1 | POOLED | BAY COUNTY (all eligibles) |
| | | 6.4 | LICENSED | Ft. Lauderdale Area (Includes Cities of Ft. Lauderdale, Lauderdale-by-the-Sea, Oakland Park, Pompano Beach, & Wilton Manors) |
| | | 10.1 | POOLED | CLAY COUNTY (all eligibles) |
| | | 13.11 | LICENSED | Dade County (secondary) (portable talkaround) |
| | | 17.1 | POOLED | ESCAMBIA COUNTY (all eligibles) |
| | | 40.1 | POOLED | MADISON COUNTY (all eligibles) |
| | | 48.6 | LICENSED | Greater Orl. Public Safety Coop. (Orlando + G.O.A.A.) |
| | | 52.3 | LICENSED | Pinellas County |
| | | 68.42 | LICENSED | FL DEPT OF CORRECTIONS Hardee Correctional |
| 825 | *868.9250/823.9250* | *N/A* | *STATEWIDE* | *GUARD CHANNEL* |
| 826 | 868.9375/823.9375 | N/A | STATEWIDE | STATE OF FLORIDA JOINT TASK FORCE |
| 827 | 868.9500/823.9500 | N/A | STATEWIDE | STATE OF FLORIDA JOINT TASK FORCE |
| 828 | 868.9625/823.9625 | N/A | STATEWIDE | STATE OF FLORIDA JOINT TASK FORCE |
| 829 | 868.9750/823.9750 | N/A | STATEWIDE | STATE OF FLORIDA JOINT TASK FORCE |
| 830 | 868.9875/823.9875 | N/A | STATEWIDE | STATE OF FLORIDA JOINT TASK FORCE |

END OF TABLE V

## 5.0 SPECTRUM UTILIZATION REQUIREMENTS

### 5.1 System Configuration Requirements

#### 5.1.1 System Configuration Levels

A. *State and Wide-Area Systems* - Plans for 821-824/866-869 MHz communications systems at a statewide or similar wide-area level will be submitted to and reviewed by the Region Committee for approval with regard to their overall impact on the Region and compliance with the Region Plan.

B. *County/Multiple-Municipality Systems* - The next level of coverage configuration is a county or multiple-municipality area system. Such systems designed to provide county-wide or similar communications coverage must demonstrate their need to require such coverage. If trunked radio technology is utilized, the system design should include as many county and/or multiple-municipality public safety radio users as can be managed technically.

C. *Municipal Level Systems* - The smallest configuration level is termed "municipal" and is used to define systems below county-wide level. Municipal communications for public safety purposes must provide only the communications coverage needed within its boundaries.

However, if the total number of mobiles in service does not reach the minimum loading criteria for a trunked system, that municipality must consider utilizing the next higher configuration level if an 800 MHz trunked system is available or planned in the area. As higher-level systems reach loading capacity, the smaller system organizations must consider combining their communications needs into a large consolidated trunked system, or forfeit exclusive use of the limited 821-824/866-869 MHz spectrum.

D. *Portable "Talkaround-only" Systems* - This level shall be considered a subset of the aforementioned levels and includes only portable radios operating at no more than 3 watts output power. These systems shall be authorized on a secondary, non-interference basis to primary allotments. Of this section of the Plan (Spectrum Utilization Requirements), such operation shall comply with only sections 5.1.2, 5.1.4, 5.1.7, 5.2 thru 5.2.3, 5.4 thru 5.4.3, and 5.4.5.

#### 5.1.2 CTCSS Requirements

All fixed, mobile and portable equipment operating on 821-824/866-869 MHz channels for conventional (non-trunked) use in the Florida Region are required to utilize a continuous tone-controlled squelch system (CTCSS) in accordance with the latest revision of Telecommunications Industry Association/Electronic Industries Association (TIA/EIA) Standard 603.

#### 5.1.3 Trunking Requirements

All systems operating in the Florida Region having five (5) or more channels (exclusive of the Mutual Aid Channels) are required to be trunked. The maximum number of conventional channels which will be assigned is four (4).

#### 5.1.4 Use of Encryption

The use of encryption on 821-824/866-869 MHz channels is encouraged for those agencies who, as part of their responsibilities, have need to conduct covert operations requiring assurance of communications security. This

*Plan recommends encryption techniques providing high levels of communications security and decoded voice recognition.*

Encryption systems in the Florida Region are encouraged to be of a digital format with the use of an analog/digital conversion techniques having a bit rate not to exceed that compatible with 25 kHz bandwidth channels. Users who must interoperate with Federal agencies in covert operations will be required to use secure communications complying with National Security Agency Standards. *Other standards vary according to end-to-end security* classification and the use of any particular scheme must be based upon the sensitivity and nature of information to be exchanged. Many Federal agencies who interoperate with State and local agencies, such as the FBI, US Customs, DEA, and the Coast Guard, are required to use encryption meeting the FIP-S42 data encryption standard.

### 5.1.5 Capability for Long-Range Communications

During incidents of major proportions where public safety requirements might include the need for long-range communications in and out of a disaster or mass-casualty area, alternate radio communications plans are to be addressed by lead agencies within the Region. Incidents addressed in the National Public Safety Plan such as earthquakes, hurricanes, floods, widespread forest fires or nuclear reactor problems could require the need for such long-range communications.

Lead agencies shall establish communications on the national Mutual Aid Channels as a minimum in accordance with Section 5.3, beginning on page 5-4. However additional means such as amateur radio systems, satellite communications, and appropriate emergency preparedness communications systems or other means must be addressed to enable long-range radio communications.

Interfaces for long-range communications may be by any means - automatic or manually controlled direct retransmission, or by simply repeating messages. Such long-range communications capabilities should be incorporated as an integral part of the communications plans of those lead agencies. Such capabilities will provide the means to communicate outside the area not only for themselves but for smaller agencies who may need assistance as well.

### 5.1.6 Public Switched Network Interfaces

The use of radio channels for automatic interface to the public switched telephone network (PSTN) will normally require a significantly longer channel occupancy time than normal two-way radio communications, upon which radio channel loading standards are based. Alternatives to PSTN interfaces, such as cellular telephone systems, will not impact radio systems channel loading.

Recognizing that any agency's reduced after-hours activity and staffing may require automatic access to the PSTN in order to contact personnel who are off-duty, this Plan encourages the use of alternatives to PSTN-interconnect in lieu of dispatch center control of access to the PSTN by not allowing any loading consideration for automatic or manual PSTN interconnect service as justification for the number of channels requested.

### 5.1.7 Federal Interoperability

Interoperability between Federal, State, and Local Governments during both daily and disaster operations will primarily take place on the five Mutual Aid Channels (see Section 5.3, page 5-4). Additionally, through the use of appropriate agreements, a licensee may permit Federal use of a non-Federal communications system. Such use, on

other than the Mutual Aid Channels, is to be in full compliance with FCC requirements for government use of non-government frequencies[21].

It is permissible for a licensee to increase channel requirements to account for up to a 2% increase in mobile units, provided that written documentation from Federal agencies supports at least that number of increased units.

### 5.1.8 Channel Loading Requirements

**A.** *General* - For loading purposes, the term "mobiles" includes mobile radios in vehicles and aircraft, portable radios, and radio frequency (RF) control stations. Schedule H, item 33 of FCC Form 601 must contain the quantities of mobiles sufficient to justify the number of channels requested. These mobile quantities must also agree with the quantities shown in the Implementation Schedule (See Section 6.1.3.(C)). Mobiles may be counted only once for loading; applicants may not "cross load" another agency's mobiles if those mobiles have already been counted in the loading of the other agency's application or license.

**B.** *Trunked Systems* - License applications for trunked systems shall be based on 100 mobiles per channel[22] in item 33 of Schedule H on FCC Form 601. Any fraction of 100 mobiles qualifies for one channel, e.g., 400 mobiles qualifies for 4 channels; 401 to 500 mobiles qualifies for 5 channels. Trunked systems may be subject to a loss of channels not loaded to 100 mobiles per channel in accordance with FCC Rules § 90.631.

**C.** *Conventional Systems* - License applications for conventional systems shall be based on 70 mobiles per channel[23] in item 33 of Schedule H on FCC From 601. Any fraction of 70 mobiles qualifies for one channel, e.g., 140 mobiles qualifies for 2 channels; 141 to 210 mobiles qualifies for 3 channels. Conventional systems are subject to a loss of exclusive use of channels not loaded to 70 mobiles per channel in accordance with FCC Rules § 90.633.

## 5.2 Equipment Technical Standards

Because of the extreme and worsening channel congestion throughout the Florida Region, the following technical standards for radio equipment utilized on the 821-824/866-869 MHz channels are required to minimize interference and provide efficient use of the spectrum.

### 5.2.1 Transmitter Standards

**A.** *Transmitters possessed (or on order) on or prior to September 7, 1988* may utilize the FCC type-acceptance standards existing at that time for the 806-821/851-866 MHz band with the exception that the transmitter frequency deviation of such equipment must be reduced to +/- 4 kHz[24].

**B.** *Transmitters on order after September 7, 1988* shall be FCC type-accepted for operation in the 821-824/866-869 MHz band, and shall meet all technical standards as defined in Part 90 of the FCC Rules and Regulations.

### 5.2.2 Receiver Standards

Although the FCC did not adopt the NPSPAC recommendation for improved receiver standards, a satisfactory channel allotment plan within the Region could not be achieved and maintained without requiring the use of enhanced receivers.

---

[21] See FCC Rules § 2.103 "Government Use of Non-Government Frequencies".

[22] See FCC Rules § 90.631 for trunked system loading requirements.

[23] See FCC Rules § 90.625 and 90.633 for conventional system loading requirements.

[24] See Memorandum Opinion and Order on Reconsideration, FCC Gen. Docket No. 87-112, adopted July 20, 1988.

**A.** *Receivers possessed (or on order) on or prior to September 7, 1988* are *not required* to have the 20 dB adjacent offset-channel selectivity as recommended by NPSPAC.

**B.** *Receivers on order after September 7, 1988* shall provide at least 20 dB of protection to the adjacent 12.5 kHz offset-channel signal when tested with the revised method described in the NPSPAC Final Report[25].

### 5.2.3 Exceptions

Mobile and portable equipment operating on the five Mutual Aid Channels[26] must meet all FCC type-acceptance requirements for the 806-821/851-866 MHz band as a minimum, but are exempted from the requirements of Section 5.2.1 and 5.2.2 above. Fixed station equipment (base, mobile relay, RF control) operating on the Mutual Aid Channels are not exempted.

## 5.3 Mutual Aid Channel Implementation Requirements

### 5.3.1 General Implementation Requirements

**A.** *Region Mobile Relay Coverage* - Mutual Aid Channel stations will be designed to provide wide-area mobile relay coverage and geographically assigned to provide continuous mobile coverage throughout the Region. It is anticipated that mobile relay stations on the Calling Channel and at least one Tactical Channel will be established to provide continuous mobile relay coverage throughout the Region. The establishment of Mutual Aid Channel stations is subject to Region Committee approval to insure sufficient coverage and minimum of interference between stations.

**B.** *Coverage Equivalency* - Agencies using or implementing systems in the 821-824/866-869 MHz bands and who are implementing one or more mobile relay Mutual Aid Channel stations shall provide coverage on Mutual Aid Channels at least equivalent to the mobile and portable coverage on their non-Mutual Aid 800 MHz system. This requirement exists for reasons of safety to officers in the field. Stations operating on Mutual-Aid channels are not required to be "simulcast."

If coverage equivalency will not be achieved, then the agency shall outline procedures to overcome the shortcomings of the coverage equivalency between Mutual Aid and non-Mutual Aid Channels, or provide justifications for not meeting coverage equivalency and assume liabilities associated with lack of equivalency.

*Prima Facia* coverage equivalency will be acknowledged when the Calling Channel and at least one Tactical Channel is implemented identical to the non-Mutual Aid system (i.e., FRIP parameters are the same for both systems). In the event of one or more different parameters between both systems, then a common method (i.e., FRIP, propagation models, field measurements, etc.) shall be used to generate signal contours for both Mutual Aid and non-Mutual system(s) to determine coverage equivalency. Associated contour maps with common method noted shall be provided with the application when the system parameters are not identical.

An agency which plans to utilize a Mutual Aid Channel system which has been (or will be) implemented by others (e.g., a city utilizing an existing county-wide Mutual Aid system) must be aware that the system may not provide coverage equivalency. For example, a county-wide Mutual Aid channel system designed for rural mobile coverage may not provide coverage equivalent to that of a city which plans a system designed for in-

[25] See pages 18 & 19 (Technical Design Criteria for Wideband-Offset Equipment) of the Final Report of the National Public Safety Planning Advisory Committee, Gen. Docket 87-112 (September 9, 1987).

[26] See Section 5.3 of this Plan.

building portable coverage. In such cases, an agency must either modify or

supplement the mobile relay system to achieve equivalency, or else acknowledge the lack of coverage equivalency in its license application.

Coverage equivalency is **strongly** recommended for agencies using or implementing a system in the 806-821/851-866 MHz band for the same reasons previously stated.

**C.** *Calling Channel (Channel #601)* - A watch will be maintained on this channel on a 24-hours-per-day, 7-days-per-week basis. Any agency operating one or more fixed stations on 821-824/866-869 MHz in the Florida Region is required to have the capability to both monitor and transmit on a Calling Channel mobile relay station from its dispatch center. Agencies who do not serve as the Network Control Center (See Section 5.3.4.) for a Calling Channel mobile relay station shall satisfy this requirement by means of an RF control station dedicated to the Calling Channel, or a dedicated wireline (or other approved link) through the Network Control Center. All agencies with Calling Channel capability are required to monitor and be prepared to render assistance on the channel.

**D.** *Tactical Channels (Channels #639, 677, 715, and 753)* - Each major user (5 channels or more) of the 821-824/866-869 MHz spectrum will be required to sponsor, individually or jointly, one or more Tactical Channel mobile relay stations (unless all Tactical Channels have been or will be implemented by others in the same area). Depending upon the needs in an area, it is encouraged that multiple channels be implemented. Talk-around on all four tactical channels will provide on-scene communications to supplement the local mobile relay and for use in areas where no mobile relay exists.

Any agency operating one or more fixed stations on 821-824/866-869 MHz in the Florida Region is required to have the capability to both monitor and transmit on all four Mutual Aid Tactical Channels from its dispatch center. Agencies who do not serve as the Network Control Center for one (or more) of these mobile relay stations shall satisfy this requirement by means of separate single-channel RF control stations, a multi-channel RF control station, dedicated wirelines (or other approved links) through the Network Control Center, or some combination of these.

### 5.3.2 State Agency/Local Agency Implementation

The Joint Task Force on State Agency Law Enforcement Communications (JTF) plans to implement the Calling Channel and 1st Tactical Channel throughout the State. In areas where these have not yet been constructed, local agencies will implement the Calling Channel and 2nd Tactical Channel. When the JTF does construct systems in those areas, the local agency Calling Channel station shall be reprogrammed to the 3rd Tactical Channel. In all cases, the State prefers that the day-to-day control of the channels be done at the local level, normally by the major public safety agency such as a County Sheriff's Office.

### 5.3.3 Allowable Communications

**A.** *General Limitations* - The five Mutual Aid Channels are to be reserved for intercommunication in situations requiring the coordination of multiple public safety entities. They shall not be used for administrative or intra-agency communications unless so directed during a disaster situation. They are designed for use between agencies which have no other common radio communications paths to enable joint operations in emergency or tactical situations. The Mutual Aid Channels are primarily for extraordinary communications between disparate agencies. When a communications function can be considered as routine, repetitive, or covered by an

administrative mutual aid agreement, the five channels should not be considered as the primary link between the agencies.

B. *Eligible Users* - Primary participants using the Mutual Aid Channels include local, state, and federal disaster management agencies, as well as providers of law enforcement, fire, and emergency medical services. If sufficient channels are available, other eligibles in the Public Safety Pool may also participate to the extent required to insure the safety of life and property. In a disaster situation, use of the Mutual Aid Channels may be extended to private volunteer organizations whose functions are in coordination with the local disaster management agency.

C. *Use of the Calling Channel* - The Calling Channel shall be used only for initial contact with other entities in the Region who can render mutual assistance during an emergency situation. This channel shall not be utilized as an ongoing working channel. Once contact is made between entities, an agreed upon Tactical or other mutual aid channel shall be used for continued communications. Talk-around is not allowed on the Calling Channel.

D. *Use of the Tactical Channels* - The four Tactical Channels are reserved for use by entities requiring continuing interagency mutual-aid communications. Incidents requiring multi-agency participation will utilize these frequencies as directed by the controlling agency having the responsibility for an incident or area of concern. The Tactical Channels may be further subdivided into groups for separate use by various public safety services as needed. In a disaster situation, one or more of the tactical channels may be designated as an intra-agency communications channel.

**E. Examples of Proper Use of the Mutual Aid Channels**

**(1)** As working channels for multiple fire departments fighting a fire together.

**(2)** For coordination during a police chase through multiple jurisdictions where the agencies have no other communications link with each other.

**(3)** For communications during extended joint operations between multiple police agencies such as drug operations, riots, etc.

**(4)** For coordination during recovery operations after a disaster such as a hurricane when local, state, and federal officials require a common communications link.

**F. Examples of Improper Use of the Mutual Aid Channels**

**(1)** To support the administrative functions of a fire department which has a mutual aid agreement with an adjacent fire department to provide "move up" capability when a fire unit leaves its own coverage area.

**(2)** To provide an extra working channel for a public safety agency supporting a special event.

**(3)** To provide a surveillance channel for use between members of the same public safety agency.

### 5.3.4 Network Control Centers

Each Mutual Aid Channel mobile relay station shall be directly controlled by a local Network Control Center under the jurisdiction of the primary Public Safety agency of that county or area. The primary Public Safety agency in each county or area shall be the County Sheriff's Department or Public Safety Department, unless another agency

has been designated as a Network Control Center by the Florida Region Committee with concurrence from the State of Florida, State Technology Office.. The responsibilities of these centers include ensuring responses to calls for assistance from any vehicle or dispatch point within their coverage area. Network Control Centers will coordinate assignments for subsequent use of the Tactical Channels for ongoing emergency operations, consistent with the geographic vicinity of the emergency.

### 5.3.5 Assignment of Control

In a disaster situation, the use of one or more Tactical Channels may be dedicated by the local Network Control Center to a specific function determined necessary for management of the immediate situation. Dedicated assignment of Mutual Aid Channels is subject to the approval of the local Emergency Operations Center, the State of Florida Division of Emergency Management of the Department of Community Affairs, State of Florida Department of Law Enforcement, or State Technology Office, as determined by Statutory authority.[27]

When a state of emergency is declared by the Governor under the provisions of the statutes referenced in the foregoing footnote, the State of Florida may take over the Calling Channel and Tac 1 for State law enforcement operations and act as a temporary Network Control Center for the duration of the declared emergency.

### 5.3.6 Technical Limitations on Mutual Aid Channels

#### A. Encryption

Transmissions on the Calling Channel shall not use any means of encryption or other selective signaling techniques.

Due to the nature of communications on the four Tactical Channels, the ability to operate securely on these channels would both protect and enhance such operations in some circumstances. Since there is no common standard for encryption among manufacturers however, *this Plan does not require that any equipment on the* four tactical channels be capable or otherwise equipped for secure speech communications. Those agencies who do require secure voice interoperability with other agencies outside their normal channel operations will be expected to provide the compatible equipment necessary for their mutual needs, but such that non-encrypted communications from either fixed or mobile stations of other agencies are not restricted.

During a disaster situation, communications on the Mutual Aid Channels designated for disaster relief operations shall not be encrypted.

#### B. Telephone Interconnect

Telephone interconnect (i.e., telephone patching) shall not be allowed on any of the Mutual Aid Channels. Telephone interconnect seizes the channel for the duration of the telephone call and tends to be more lengthy than typical radio traffic. Therefore, prohibiting telephone interconnect maintains the channel capacity of these channels.

### 5.3.7 Mutual Aid Channel Equipment Requirements

A. All mobile and portable radios shall be equipped to operate on all five Mutual Aid Channels.

[27] Florida Statutes, Chapter 252, entitled "Emergency Management" defines the emergency management powers and duties of the State and political subdivisions. Florida Statutes, Chapter 23, entitled "Florida Mutual Aid Act" establishes the administration of the Florida Mutual Aid Plan by the Florida Department of Law Enforcement.

**B.** All fixed and mobile/portable equipment operating on the Mutual Aid Channels shall use continuous tone-controlled squelch (CTCSS) tone of 156.7 Hz.

**C.** Base stations shall be equipped to operate as mobile-relay stations (repeaters) but shall normally operate in the repeat-disable mode until a request for mobile-relay service is received. Each Network Control Center shall be equipped to control the repeat-enable/disable function of all Mutual Aid Channel repeaters for which it serves as the primary control center.

### 5.3.8 Mutual Aid Operational Policy and Procedure

#### 5.3.8.1 The following definitions apply to this policy and procedure:

**Mutual Aid CALL** – A frequency pair is assigned to Mutual Aid CALL (MA-CALL) and is reused across the state as well as the nation. It is the same frequency pair no matter where you are. It is used to hail the responsible Network Control Center (NCC) for the area. MA-CALL operates strictly in the repeater **Disabled** mode and is sometimes referred to as the "Hailing" channel. Regardless of what NCC(s) may exist in an area, at least one should hear hails on the MA-CALL channel with the primary or back-up NCC responding.

**Mutual Aid TAC1** – A frequency pair is assigned to Mutual Aid TAC1 (MA-TAC1) that is reused across the state as well as the nation. It is the same frequency pair no matter where you are. It is used as a tactical or operational channel when adjoining counties/cities need to share communications. Although MA-TAC1 normally operates in the repeater **Disabled** mode, it can be **Enabled** for wide-area mobile communications. MA-TAC1 meets needs across multiple local jurisdictions

***Mutual Aid TAC2, 3, and 4*** – *Like* MA-TAC1, *a unique frequency pair is* assigned to each MA-TAC2, 3, and 4 channels that is reused across the state as well as the nation. It is the same frequency pair no matter where you are. It is used as a tactical or operational channel when adjoining counties/cities need to share communications. Although MA-TAC2, 3, and 4 normally operate in the repeater **Disabled** mode, it can be **Enabled** for wide-area mobile communications. These channels are tailored to meet communications needs within local jurisdictions whereas MA-TAC1 meets needs across multiple local jurisdictions.

**Cluster** – A cluster is a term used when more than one repeater site collectively covers a large geographic area which can be more than one county/city. It may cover all or encompass portions of adjoining counties/cities. This is why **Enabling** and **Disabling** repeater functionality is so critical to a successful mutual operation.

**Local Network Control Center** – The **local** Network Control Center normally includes the county Sheriff's Office dispatch that would have operational control of local mutual aid channels (i.e., MA-TAC2, 3, and/or 4) to complement the State's MA-CALL and MA-TAC1.

**Primary Network Control Center** – The **primary** Network Control Center (NCC) is normally the local Network Control Center (a.k.a., the county Sheriff's Office dispatch) acting as the answering point for a coverage area or cluster. The **primary** NCC is responsible for answering MA-CALL 24 hours a day and *assigning the appropriate* MA-TAC channel for the response area.

**Back-up Network Control Center** – The **back-up**[28] Network Control Center (NCC) is normally the State Regional Communications Center (RCC). Each RCC is responsible for a multi-county area that comprises its dispatch jurisdiction of multiple primary NCCs. Each **back-up** NCC is responsible for monitoring MA-CALL but defers to the respective primary NCC for initial responses.

### 5.3.8.2 State MA-CALL and MA-TAC1

The State of Florida provides Mutual Aid CALL and Mutual Aid TAC1 across the state[29] to all eligible agencies that own and operate 800 MHz radio equipment. These channels may be used for mutual aid operations when there is a large-scale incident, when no other MA-TAC channel is available, or when an incident is moving across county/city jurisdictions.

### 5.3.8.3 Local MA-TAC2, 3, and 4

Similar to the State MA-CALL and MA-TAC1 channels, county/city agencies provide MA-TAC 2, 3, and/or 4 within their respective jurisdictions but not necessarily in every county/city agency throughout Florida.

The field unit notifies the NCC for assignment of a Mutual Aid-TAC channel. Each NCC should know where the local Mutual Aid TAC repeaters are within their jurisdictional responsibility and what area(s) they cover. This will become most important if a second mutual aid incident arises. Coordination between dispatchers to select the right MA-TAC channel is vital to each specific incident. These MA-TAC channels usually cover smaller areas (i.e., a county/city area in comparison to State mutual aid channels). There are not as many overlapping repeaters on these MA-TAC channels such as those of the State MA-CALL and MA-TAC1 channels. Each county/city that implemented MA-TAC2, 3, and/or 4 has control of them. They are not controlled by the State. Each county/city dispatch center controls the **Enable** and **Disable** function in its console and has the responsibility to **Enable** and **Disable** them at the console level. The State RCC cannot assist with Mutual Aid TAC2, 3, or 4 repeaters.

All repeaters need to be in the **Disabled** mode at all times. Accordingly any unit transmitting on the mutual aid channels will be heard by the associated NCCs. This is due to the console design. It is when two or more field units need to talk to each other on a mutual aid channel that the dispatcher needs to **Enabled** the repeater. Otherwise, the units will not hear each other and can only hear the dispatcher. An exception to repeater use will be when two or more field units are in close proximity of each other; this allows mutual aid *Direct* (or *talk-around*) communications.[30]

If a moving incident takes units into an area where coverage poses a threat and an agency helicopter equipped with an 800 MHz public safety radio is assisting in the incident, the ground unit and the helicopter can go onto *Direct* (or *talk-around*) mode. The agency helicopter can, in turn, relay information between the ground units and the dispatcher on the repeater channel. The *Direct* (or *talk-around)* mode should only be used on the MA-TAC channels.

---

28 "Back-up" is the term used as opposed to "Secondary.". The Region 9 Plan for Public Safety Radio Communications refers to "Secondary" stations with RF control stations which communicate with an NCC or require repeater **enabled** by the NCC to communicate with field units.

29 The State's mutual aid communications channels provide mutual aid radio coverage throughout the state. While radio communications on these two channels are recorded at each associated State Regional Communications Centerregional communications center, this should not be construed to usurp or relieve any local agency responsibility to record common radio communications at their communications center.

30 The dispatcher will not be able to monitor communications on the direct or talk-around mode. However, the field units will be able to hear dispatcher transmissions on the repeater – **Enabled** or **Disabled**. Talkaround should be made on a case-by-case basis by the originating agency Commander-in-Charge.

Plain ENGLISH will be used at all times on all Mutual Aid channels. The use of unfamiliar terms or codes is not allowed.

### 5.3.8.4 Step by Step Process for Use of Mutual Aid CALL and Mutual Aid TAC Channels

**MA-CALL Procedures**

1. MA-CALL shall be left in the repeater **Disabled** mode.
2. Any 800 MHz radio user may hail on MA-CALL.
3. It will be the responsibility of the primary Network Control Center (NCC) to respond to the unit that is calling in the cluster
4. If the primary NCC is unable to respond, the back-up NCC (usually a State RCC) will respond to the unit that is calling in the cluster. Other back-up NCCs may participate as determined on a case-by-case basis.
5. MA-CALL shall be **monitored** at all times, 24 hours a day, 7 days a week by the primary and backup NCC.

**MA-TAC1 Procedures**

1. MA-TAC1 should be in the repeater **Disabled** mode.
2. When a unit hails on MA-CALL and it is determined that a large-scale (or multi-cluster) mutual aid incident is going to take place or no other MA-TAC channel is appropriate or available, the dispatcher will advise the units involved to select MA-TAC1.
3. The NCC may **Enable** the MA-TAC1 repeater as required for unit-to-unit communications.
4. When the incident is over or requires communications through another cluster, the NCC will **Disable** the repeater in conjunction with the adjoining NCC **Enabling** their repeater as necessary.
5. The primary NCC can request assistance from the State RCC to **Enable** and **Disable** the MA-TAC1 repeater if necessary.
6. The NCC shall coordinate in advance with the adjoining primary NCC when the moving incident is anticipated to require communications on MA-TAC1 in the adjoining cluster.31
7. The field unit notifies NCC once the assigned MA-TAC channel is no longer needed.
8. The NCC ensures the repeater is **Disabled** and makes it available for the next assignment.
9. Direct (or talk-around) communications on MA-TAC1 may be used when two or more units are in close proximity of each other.32

**State Assistance/Control Procedures**

1. Assistance/control from the State Regional Communications Center (RCC) may be requested under the following conditions.

   A. The moving incident can no longer be operated or monitored by the originating agency and the primary NCC can not hand over the incident to the successive primary NCC of the moving incident, or
   B. The incident (moving or stationary) is such that it would benefit from assistance/control of the RCC.[33]
   C. Sufficient lead time and briefing for the RCC is provided.

2. Given A or B, and C above, the RCC will assume control of the mutual aid channel as the lead dispatcher throughout the remaining duration of the incident.

---

31 Refer to the Local NCC map for contact information of the appropriate Primary or Back-up NCC to notify.
32 The dispatcher will not be able to monitor communications on the talk-around or direct mode. However, the field units will be able to hear dispatcher transmissions on the repeater – **Enabled** or **Disabled**. Talkaround should be made on a case-by-case basis by the originating agency Commander-in-Charge.
33 Various clusters throughout the Statewide Law Enforcement Radio System are "voted/steered" clusters which have manual override functionality at the State Regional Communications Centers.

3 The RCC will **Enable** and **Disable** the mutual aid repeater as the moving incident moves in and out of the repeater areas (a.k.a., clusters).
4 The RCC may invoke "supervisory takeover" as the lead dispatcher which will inhibit transmitting and repeater **Enable/Disable** by the primary NCC of each respective cluster.
5 Control handed over to the RCC will carry over to any and all successive NCC areas without the need to re-acquire control from successive NCC areas.
6 The RCC will relinquish control when mutually ben eficial to the incident, the RCC, and primary NCCs.

**MA-TAC2, 3, and 4 Procedures**

1. MA-TAC2, 3, and 4 should be in the repeater **Disabled** mode.
2. When a unit hails on MA-CALL, the dispatcher will advise the units involved to select the appropriate MA-TAC channel.
3. The NCC may **Enable** the assigned MA-TAC repeater as required for unit-to-unit communications.
4. When the incident is over or requires communications through another cluster, the NCC will **Disable** the repeater in conjunction with the adjoining NCC **Enabling** their repeater.
5. The NCC shall coordinate in advance with the successive primary NCC when the moving incident is anticipated to require communications on an MA-TAC channel in the adjoining cluster as necessary.34
6. NCC controls the activity for the duration of the incident on the MA-TAC channel assigned.
7. The field unit notifies the NCC once the assigned MA-TAC channel is no longer needed.
8. The NCC ensures the repeater is **Disabled** and makes it available for the next assignment.
9. Direct (or talk-around) communications on MA-TAC1 may be used when two or more units are in close proximity of each other.35

REMEMBER – **Disable** the repeaters when the incident is done.

If you are monitoring the mutual aid channels and you can hear units communicating, do not hesitate to ask the units to identify themselves if you are unaware of authorization to use the channel(s). If you do not get a response, ask again. If you continue to hear communications, call your adjoining NCCs to identify the use of the mutual aid channel(s) where communication may be bleeding over. Officer safety may be compromised if the channel(s) are inadvertently disabled or otherwise altered. If unauthorized traffic is being passed, the primary or back-up NCC can **Disable** the repeater to halt its use. Follow-up activity by the NCC taking action should ensue to ensure future unauthorized use in mitigated.

## 5.4 System Interference Protection Standards

The following standards are established to provide uniform measures of protection to all systems against co-channel and adjacent offset-channel interference, as well as to limit powers and antenna heights to provide for maximum re-use of channels.

Distances between co-channel base stations will not be held to seventy (70) miles or any other fixed value. Separation of co-channel and offset-channel stations will be determined analytically using the protection ratio methods defined in this Plan. Analytical modeling of system interference in the Florida Region shall utilize the center-band frequency of 838 MHz as the standard frequency for analysis.

34 Refer to the Local NCC map for contact information of the appropriate Primary or Back-up NCC to notify.
35 The dispatcher will not be able to monitor communications on the talk-around or direct mode. However, the field units will be able to hear dispatcher transmissions on the repeater – **Enabled** or **Disabled**. Talkaround should be made on a case-by-case basis by the originating agency Commander-in-Charge.

Predictions of the following coverage and interference contours shall utilize the *horizontal* gain of antennas (including "downtilt" antennas).

These interference protection standards shall not apply to stations on the Mutual Aid Channels. The design and implementation of Mutual Aid Channel systems shall be approved on a case-by-case basis.

### 5.4.1 Protected Service Area Contour

The Protected Service Area Contour (PSAC) is limited to no more than three (3) miles outside the boundary of the user's legal jurisdiction. The median field strength at this contour, as determined by the methods stated in Section 5.4.5, shall not exceed +40 dBu (4.75 uv across 50 ohms at 838 MHz). In order to allow for practical system design, the 3-mile pad may be altered when approved on a case-by-case basis, provided that the change does not exceed the interference protection criteria to other existing systems or allotted channels. Communications coverage further than 3 miles beyond the bounds of a jurisdictional area of concern cannot be tolerated unless it is critical to the protection of life and property and can be so demonstrated.

Systems of four (4) or fewer channels operating in the conventional mode that do not meet FCC loading standards may be required to share the channels on a non-exclusive basis. For these systems, the Protected

Service Area Contour shall not be protected from the Co-Channel Interference Contour of other systems, although they shall be protected from other Offset-Channel Interference Contours.

### 5.4.2 Co-Channel Interference Contour

The Co-Channel Interference Contour (CCIC) is defined as the +14.4 dBu contour as determined by the methods stated in Section 5.4.5. The Co-Channel Interference Contour of undesired stations shall not intersect the Protected Service Area Contour of desired stations. This standard will provide at least a 25.6 dB ratio of protection to and from mobile stations on or within a Protected Service Area Contour.

### 5.4.3 Offset-Channel Interference Contour

The adjacent Offset-Channel Interference Contour (OCIC) is defined as the +33.3 dBu contour as determined by the methods stated in Section 5.4.5. The Offset-Channel Interference Contour of undesired stations shall not intersect the Protected Service Area Contour of desired stations. When combined with the 20 dB receiver selectivity requirement of Section 5.2.2, this standard will provide a 26.7 dB ratio of protection to and from mobile stations on or within a Protected Service Area Contour.

### 5.4.4 Limitations on Power and Antenna Height

A. *Systems Having a Protected Service Area Contour Radius of 21 miles (34 km) or More* - The effective radiated power (ERP) and antenna height for base stations shall be no greater than 500 watts (+27 dBu) and 500 feet (152 meters) above the Composite Average Terrain(see Section 6.2.2.B on page 6-4) respectively. These are maximum values, and applicants are required to provide adequate justification for the actual power levels and antenna heights requested.

B. *Systems Having a Protected Service Area Contour Radius of Less than 21 miles (34 km)* - The effective radiated power (ERP) and antenna height for base stations shall be limited to the values shown in Table IV. Values between those shown on the table may be estimated by interpolation, however the method described in

Section 5.4.5 will yield more accurate results.

**Table VI - Effective Radiated Power Limits For Systems Having Less than a 21 mile (34km) Protected Service Area Contour Radius**

| PROTECTED SERVICE AREA RADIUS | BASE STATION ANTENNA HEIGHT (AAT) (feet) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mi (km) | 50 | 75 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| 21 (34) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| 20 (32) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 484 | 369 |
| 19 (29) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 465 | 350 | 265 |
| 18 (27) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 473 | 356 | 268 | 203 |
| 17 (27) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 368 | 278 | 211 | 160 |
| 16 (26) | 500 | 500 | 500 | 500 | 500 | 500 | 402 | 287 | 218 | 166 | 127 |
| 15 (24) | 500 | 500 | 500 | 500 | 500 | 443 | 302 | 217 | 165 | 126 | 97 |
| 14 (22) | 500 | 500 | 500 | 500 | 500 | 323 | 222 | 160 | 123 | 94 | 73 |
| 13 (21) | 500 | 500 | 500 | 500 | 397 | 236 | 164 | 119 | 92 | 71 | 55 |
| 12 (19) | 500 | 500 | 500 | 500 | 290 | 172 | 120 | 88 | 68 | 53 | 41 |
| 11 (18) | 500 | 500 | 500 | 416 | 213 | 126 | 88 | 65 | 51 | 40 | 32 |
| 10 (16) | 500 | 500 | 500 | 304 | 156 | 93 | 65 | 48 | 38 | 31 | 24 |
| 9 (14) | 500 | 500 | 452 | 214 | 110 | 65 | 46 | 34 | 28 | 22 | 18 |
| 8 (13) | 500 | 500 | 294 | 141 | 72 | 43 | 30 | 23 | 19 | 15 | 12 |
| 7 (11) | 500 | 357 | 192 | 93 | 47 | 28 | 20 | 15 | 13 | 10 | 8 |
| 6 (10) | 500 | 221 | 122 | 59 | 30 | 18 | 13 | 10 | 8 | 7 | 6 |
| 5 (8)or less | 262 | 115 | 67 | 34 | 18 | 11 | 8 | 6 | 5 | 4 | 4 |

### 5.4.5 Coverage and Interference Model to be Used

The signal contour model to be used to determine compliance with the interference protection standards of this Plan is a computer version of the Okumura model prepared by the Florida State Technology Office, and which is available upon request by applicants (see address on page 6-1) or via the Internet at
: http://www.myflorida.com/myflorida/sto/planspolicies/r9webpg.html
The computer model (referred to as the "Florida Region Interference Program") predicts Protected Service Area Contours, Co-Channel and Offset-Channel Interference Contours, distance and azimuth between stations, and computes the applicable desired-to-undesired signal strength ratios. The computer program may be used on any IBM-compatible personal computer having a draft or better quality printer. The Florida Region Interference Program has been verified to closely correlate with the Motorola version used in the initial channel allotment process (see Section 4.4, page 4-1).

The Florida Region Interference Program was prepared as an interference model only, and *is not intended for the design of systems.* The program does not include many variables which are necessary for the detailed engineering and tailoring of individual system designs.

For the purposes of portable "talkaround-only" systems, the portable radio transmitter parameters shall be utilized in the Florida Region Interference Program to protect existing primary allotments and determine the acceptable area of operation. Until the Florida Region Interference Program is modified to perform this specific analysis in a user-friendly manner, the State of Florida, Bureau of Wireless Communications will perform this function.

### 5.4.6 Radio Frequency Control Stations

Radio frequency control stations shall operate on a "secondary basis" to primary stations (i.e., base or mobile-relay, mobile, or portable radio). Radio frequency control stations shall employ directional antennas having a front-to-back gain ratio of at least 10 dB. Radio frequency control stations shall be engineered to provide no more than –98 dBm rf signal level at the base station receive antenna terminals. Any approval for operation of RF control stations shall have the stipulation that *these stations are continually contingent upon no substantiated complaints of interference to either present or future systems(secondary basis).* Upon the Florida Region Committee's confirmation of any such complaints, operation of such RF control stations shall be modified to mitigate the interference or discontinued if a cooperative agreement can not be reached between affected licensees.

Transmit capability from remote stations outside the licensed area should be achieved through other means such as telephone lines, microwave, or other type of radio control.

## 5.5 Relinquishment of Lower Frequencies

It is anticipated that in all but the most unusual cases, frequencies presently utilized by a licensee will be relinquished for reassignment upon implementation of new systems under this Plan. Agencies shall not be permitted to attempt a direct reassignment of vacated channels, nor to "farm-down" frequencies to other services within their political structure. The need for communications by such an agency may be outweighed by the needs of another entity.

The FCC authorized frequency coordinators will be responsible for reassignment of the channels to the various eligible agencies awaiting channels in lower frequency bands. Normal coordination procedures will be followed with these turned back channels, except that recommendations made by the Region Plan Committee using the Service Category Evaluation Point values defined in this Plan (see **Table II**, page 4-3) are to be considered. In such cases where specific channels are requested by numerous applicants, the Florida Region Channel Allotment process will be utilized (see **Figure 2**, page 4-6). In all cases, area of coverage criteria and channel loading criteria as covered in this Plan will be applied.

**Table VII- Statewide Emergency/Mutual-Aid Frequencies**

| FREQUENCY | CTCSS | Elig. | PRIMARY USE |
|---|---|---|---|
| 39.10/39.10 | 156.7 | PL | Emergency Management |
| 39.18/39.18 | 156.7 | PL | Emergency Management |
| 45.86/45.86 | none | PL | Law Enforcement Emergency |
| 154.265/154.265 | none | PF | Fire Mutual Aid (red) |
| 154.280/154.280 | none | PF | Fire Mutual Aid (white) |
| 154.295/154.295 | none | PF | Fire Mutual Aid (blue) |
| 154.950/154.950 | none | PP | Law Enforcement Emergency |
| 155.340/155.340 | none | PM | Medical Resource Coord. |
| 155.370/155.370 | none | PP | Law Enforcement Intercity |
| 460.275/465.275 | none | PP | Law Enforcement Emergency |
| 463.175/463.175 | 167.9 | PM | EMS Medical Resource & Scene Coordination |
| 463.175/468.175 | 167.9 | PM | EMS Medical Coordination |
| 853.3875/808.3875 | 210.7 | GP | Public Safety/Special Emergency Mutual Aid |

Elig. - Eligibility

**Table VIII - Statewide Highband Law Enforcement Frequency Pairs**

| | | |
|---|---|---|
| 154.650/155.190 | 154.830/155.565 | 155.730/156.030 |
| 154.710/155.250 | 154.845/155.580 | 155.790/156.090 |
| 154.725/155.310 | 154.860/155.595 | 155.850/156.150 |
| 154.740/155.415 | 154.875/155.610 | 155.910/156.210 |
| 154.755/155.430 | 154.890/155.625 | 158.730/159.030 |
| 154.770/155.490 | 155.010/155.655 | 158.790/159.090 |
| 154.785/155.520 | 155.070/155.670 | 158.850/159.150 |
| 154.800/155.535 | 155.130/155.685 | 158.910/159.210 |
| 154.815/155.550 | 155.640/155.970 | 155.700/158.970 |

As lower band frequencies are vacated, they will be reassigned to conform to the lists of Statewide channels as shown in Table VII and Table VIII in accordance with State of Florida communications plans. In each table, the base station transmit frequency is shown first, followed by the mobile transmit frequency.

### 5.6 Implementation Schedules

The majority of eligible public safety organizations are either of State and Local government, or else are subject to governmental regulation. The nature of governmental planning and budgeting processes, combined with difficult revenue constraints, prohibits most eligibles from implementing newer technology systems in the normal time required by FCC Rules (8 months for construction of conventional stations, 12 months for trunked stations)[36]. In most cases, public safety systems will require multi-year phased-implementation schedules requiring three to five times as long to construct as private or commercial systems. Regional, wide-area, and statewide systems will require even longer periods to construct.

In view of these known situations, this Region Plan establishes an extended implementation schedule in accordance with FCC Rules[37] which is available to all eligible applicants, *if requested by stating "**SLOW GROWTH**" on the license application.* A **SLOW GROWTH** schedule will allow up to five years for completion of station construction. Applicants who request **SLOW GROWTH** are *not required* to submit the specific items of **SLOW GROWTH** justification normally required by FCC Rules.[38]

*END OF SECTION 5*

[36] See FCC Rules § 90.155(a) and § 90.631(e).

[37] See FCC Rules § 90.629, § 90.631, and § 90.633.

[38] See FCC Rules § 90.629(a).

## 6.0 APPLICATION PROCEDURES

### 6.1 General Application Requirements

Applications for frequencies in the 821-824/866-869 MHz band shall be prepared and submitted in accordance with applicable FCC Rules,frequency coordinators procedures, as well as with requirements of the Florida Region Plan. For portable "talkaround-only" systems, applications shall comply with only Sections 6.1.1, 6.1.2, 6.1.3, 6.2.2 and 6.2.2(C). Mutual Aid-only applications shall be excluded from the requirements of sections 6.1.3(D, E, G, H, & I) and 6.2.2.

#### 6.1.1 Where to Submit Applications

Completed applications shall be submitted to the Chairman of the Florida Region Committee or the Chairman of the Local Subregion Committee (if established) who will then review and forward applications to the Region Committee Chairman. Refer to the list of Chairmen's names and addresses in Table I, page 2-3.

Information regarding active Local Subregion Committees may be obtained from the appropriate Subregion Chairman or from the Florida State Technology Office. Applications received by the Region Committee which show no evidence of Subregion review (where required) shall be forwarded to the Local Subregion Committee without further action.

Following application approval by the Region Committee, a copy of the application shall be retained by the Florida State Technology Office. The original application will then be returned to the applicant with instructions to send the application to an approved FCC Frequency Coordinator accompanied by payment of the required fees. ***DO NOT*** *send any payment with the initial application to the Subregion or Region Committee.*

#### 6.1.2 Forms to be Used

Applications shall be submitted using the latest versions of FCC Form 601 "Application for Wireless Telecommunications Bureau Radio Service Authorization", and any supplementary form required by the FCC certified Frequency Coordinator. In addition each application shall include all supplementary documentation and exhibits as required by this Region Plan.

Copies of the necessary forms and FCC instructions, as well as general assistance in completing applications may be obtained by written request to Jean-Pierre Saliba, Supervisor, State Technology Office, 4030 Esplanade Way, Suite 315K, Tallahassee, Florida, 32399-0950.

#### 6.1.3 Supplemental Information to be Submitted

Applications submitted shall include all of the following information. All information shall be clearly contained within 0.75 (3/4) inch margins of lettersize (8 1/2" x 11") paper, or folded to an 8 1/2" x 11" size.

A. A Statement of Need for utilizing 821-824/866-869 MHz frequencies under the jurisdiction of this Plan.

**B.** A showing that a budget commitment has been made by the jurisdiction responsible for implementation of the proposed system.

**C.** A detailed schedule of implementation milestones by month and fiscal year showing estimated dates of procurement activity and system implementation including dates and quantities of mobile station implementation. If a "slow growth" construction schedule is needed, applications must clearly state the phrase "***SLOW GROWTH***" on the application Form 601 Schedule H item 8 (see Section 5.6). If a station construction or loading schedule longer than that allowed by this Region Plan and FCC Rules is required, the application must include a Request for Waiver[39] for such an additional extension of time.

**D.** For conventional (non-trunked) systems, a statement explaining why the proposed system cannot or should not be on a lower band or consolidated with other systems into a more spectrum-efficient trunked system covering the same or larger geographic area.

**E.** If a proposed conventional (non-trunked) channel is to be used for mobile data, automatic vehicle location, or other non-voice signaling, explain why the proposed operation cannot or should not utilize lower-band frequencies.

**F.** An explanation of implementation and operational plans to establish compliance with the Mutual Aid Channel requirements of Section 5.3 of this Plan.

**G.** An explanation as to how system interoperability will be achieved with other public safety and special emergency services in other bands, particularly via long distance radio communications for emergency management purposes such as amateur radio, satellite communications, and long-range emergency preparedness communications systems in accordance with Section 5.1.5 of this Plan.

**H.** A copy of each FCC license for all radio frequencies and callsigns, in all radio services, which are currently licensed to, or applied for by, the applicant within 40 miles (64 km) of each proposed site. This information must correlate to the plans for frequency relinquishment (or retention) in the following Section.

**I.** For each existing (or applied for) frequency to be relinquished, the application must include a date upon which relinquishment is planned. For each existing (or applied for) frequency proposed to be retained, include a detailed showing of justification as to why the frequency must be retained rather than relinquished for use by other organizations.

**J.** All Technical Information as required by the following Sections.

### 6.2 Technical Content of Applications

All applications shall contain all technical information required by the FCC and the frequency coordinator application forms as well as the following information necessary to fully describe, for Protected Service Area and Interference Contour purposes, the proposed system implementation. Some of the required information is

[39] See FCC Rules, § 90.151, "Requests for waiver".

automatically generated by the "Florida Region Interference Program" (see Section 5.4.5) and is included in the program's Final Report. Applicants may submit either a printout of the Final Report with their application, or a 3.5" " floppy disk containing the program files relating to the application. The Florida Region Interference Program contains a menu-selectable utility which will copy the necessary files to a floppy disk.

### 6.2.1 System Design Parameters

#### A. System Gains and Losses

Each application shall include a summary calculation of the system gains and losses totaling the Effective Radiated Power (ERP) of each particular antenna system in the direction of each of the eight cardinal radials (see Section 6.2.2.A.(1)), as well as in the direction of each licensed or allotted Co-Channel and Offset-Channel system.

#### B. Antenna System Parameters

**(1)** *Antenna System Vertical Profile Drawing* - Each application for a new or modified antenna system shall include a vertical profile drawing showing the overall antenna structure (tower, building, or other structure) detailing the height of both the tip and center of radiation of the proposed antenna, the ground elevation, and clearly showing the overall height of any supporting building or other antenna structure. Heights shall be in terms of elevation above-mean-sea-level (AMSL), or elevation above-ground-level (AGL).

**(2)** *Horizontal Antenna Configuration* - Each application shall include a plan-view drawing showing the antenna horizontal position relative to its supporting structure. For side-mounted antennas, clearly define the dimensions of the supporting structure (such as tower face width, tower leg diameter, etc.) as well as the relative position of the antenna and the distance (in wavelengths or feet) between the antenna and structures supporting it. Include any other data necessary to support the values shown in accordance with 6.2.1.B.(3).

**(3)** *Antenna Gain Patterns* - For each proposed antenna, a horizontal gain pattern shall be included showing the antenna power-gain distribution throughout 360° in the horizontal plane expressed in decibels above the gain of a half-wave dipole. For "downtilt" antennas, a vertical gain pattern shall also be included showing the antenna power-gain distribution throughout 360° in the vertical plane expressed in decibels above the gain of a half-wave dipole. For side-mounted antennas, the gain patterns shall analytically or empirically take into account the size, shape and orientation of the antenna mounting structure.

### 6.2.2 Interference Studies

Each application shall contain interference studies demonstrating that the proposed stations will not cause harmful interference to existing or allotted co-channel or offset channel systems. Interference studies shall be prepared using the "Florida Region Interference Program" (see Section 5.4.5). This program will analyze proposed stations with respect to a database of all existing and allotted systems within Florida. Since this database is dynamically maintained, applicants are cautioned to insure that only the LATEST VERSION of the computer program is used in preparing applications.

For portable "talkaround-only" applications, a "Letter of Concurrence" from each affected primary agency will be accepted for co-channel operation in lieu of a satisfactory interference study. The letter shall be on the affected primary agency's letterhead, state concurrence for the applicant to operate on the affected agency's co-channel frequencies, list the frequencies, and be signed by the affected agency's authorized signer.

**A. Terrain Profile Graphs**

Each application shall contain terrain profile graphs accurately indicating topography and satisfying the following requirements, except that systems in Monroe, Dade, Collier, Broward, and Palm Beach Counties may assume an average terrain elevation of 10 feet above mean sea level; profile graphs within these counties are not required.

(1) *Cardinal Radials* - Terrain profile graphs shall be drawn from the proposed station site extending to 20 miles for each 45 degrees of azimuth starting from True North.

(2) *Profile Distance Increments* - The profile graph for each radial shall be plotted in uniform increments of distance and using the nearest contour interval available from topographic quadrangle maps having a scale of 1:24,000. The distance increment shall generally be not more than 1/4 mile, except that in cases of uniform or gently sloping terrain, the distance between the smallest contour on the topographic map should be used, even though relatively few points may be available. When a portion of the radial extends over water, that portion need not be included on the profile graph (or in computations of average terrain) unless the radial passes over United States land within 80 miles of the proposed station.

(3) *Profile Graph Format* - Each profile graph shall be plotted on rectangular-coordinate paper or 4/3 curved-earth paper, and showing the distance in miles on the horizontal axis, and elevation in feet above mean sea level on the vertical axis. Each graph shall indicate the azimuth bearing relative to True North.

(4) *Sources of Topographic Data* - Each profile graph shall indicate the source of topographic data used (name and latest revision date of quadrangle). In lieu of topographic maps, the profile elevation data, profile graphs, and computation of average terrain elevation may be computer generated from 30 arc-second or better terrain databases. The database used shall be clearly identified, and the data shall be processed for intermediate point values using an interpolation technique of at least linear accuracy. For determination of the height above mean sea level of the antenna site, as well as in cases of dispute, the most current U.S.G.S. 1:24,000 topographic data shall be used.

**B. Calculations of Average Terrain Elevations**

The average of terrain elevation values above mean sea level for elevation points between two and ten

miles for each of the eight cardinal radials shall be shown in the application, and shall be further averaged to produce a value for the Composite Average Terrain Elevation. The composite value determined shall be used for determination of the antenna height above average terrain (HAAT) which shall be entered on FCC Form 601, Schedule H, item 22.

Calculations of potential interstation interference shall use an antenna height above average terrain based on an average terrain elevation along the interstation radial obtained by cubic spline of the average terrain elevations of the 8 cardinal radials. The Florida Region Interference Program performs these calculations automatically.

### C. Interference Calculations

For each pair of base stations studied (proposed and co-channel or adjacent offset-channel), the Florida Region Interference Program shall be used to determine:

**(1)** The distance in miles and radial bearing in degrees relative to True North between the proposed station and the co-channel (or offset-channel) station.

**(2)** The distance in miles from the proposed station to its Protected Service Area Contour (PSAC).

**(3)** The distance in miles from the co-channel (or offset-channel) station to its PSAC.

**(4)** The distance in miles from the proposed station to the PSAC of the co-channel (or offset-channel) station.

**(5)** The distance from the co-channel (or offset-channel) station to the PSAC of the proposed station.

**(6)** For the point of intersection of the interstation radial and each PSAC:

**(a)** The field strength of the undesired signal in dBu.
**(b)** The ratio (in decibels) of the desired and undesired field strengths.

### D. Protected Service Area Contour Drawings

Each application shall include a map (or maps) showing the boundaries of the applicant's legal jurisdiction and the complete +40 dBu contour of the proposed station (or stations). Maps used for these drawings shall not be of greater scale than 1:500,000. Copy reduction is allowed provided the resulting scale is clearly indicated. As provided in Section 5.4, calculations involving a "downtilt" antenna shall utilize the antenna's *horizontal* gain for prediction of the contour.

## 6.3 Special Temporary Authority Procedure

If a situation occurs where a Special Temporary Authority (STA) must be obtained for operating a station, the following procedures will be applied. The process to obtain a license for using Region 9 channels will be governed by the same guidelines as outlined in the Region 9 Plan Sec. 6.0. General information concerning STA may be obtained at the following website:
**http://wireless.fcc.gov/publicsafety/sta.html**. The FCC strongly encourages the applicant to file electronically via the Universal Licensing System(ULS) website which can be access by the following URL:
**http://wireless.fcc.gov/uls/)**.

### 6.3.1 STA Procedures

The Region 9 application for a STA must meet all the technical requirements as previously outline in this Plan. The application should be submitted to the Region 9 Chairman along with a cover letter explaining the need for the request.

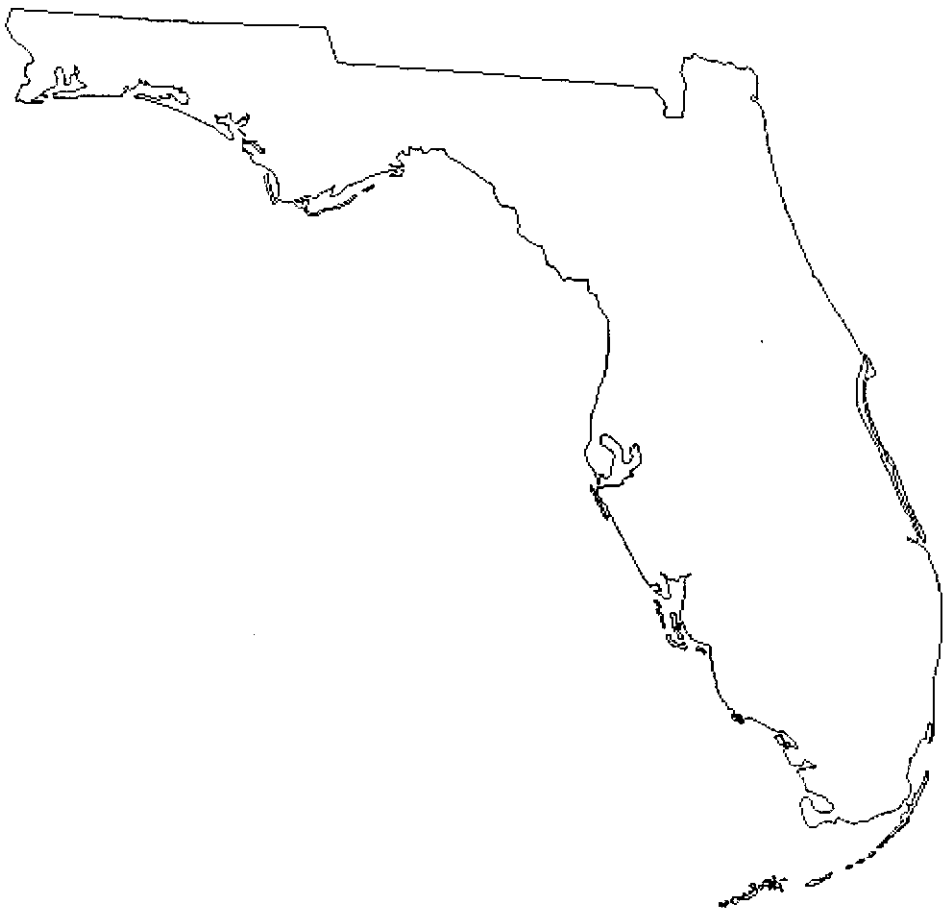
Once the STA is approved, the Region Chairman will send the STA approval letter to the applicant. The applicant may file the approved STA either electronically or by mail. If the applicant files electronically, the website address is: http://wireless.fcc.gov/uls/.
The Region 9 approval letter should be attached with the completed FCC Form 601 application. If the applicant files by the mail, the completed FCC Form 601 should be submitted to the following address:

Federal Communications Commission
Wireless Bureau Applications
P. O. Box 358130
Pittsburgh, PA 15251-5130

**Note, the STA application goes directly to the FCC, not an approved FCC Coordinator such as APCO.**
It is recommended that the STA applicant forwards a final Region 9 application, three months before the expiration date of the STA, to the Subregion chairman or the Region 9 Chairman.

*END OF SECTION 6*

# FLORIDA - REGION 9



# PLAN FOR PUBLIC SAFETY RADIO COMMUNICATIONS (Amendment #13)